

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-18. (Canceled)

19. **(Currently amended)** A filtration apparatus, comprising:

a shaftless, ~~vaneless~~ rotor, and

a rotor housing accommodating said rotor therein,

wherein:

the rotor is confined within a essentially spherical ~~in-shape~~ envelope defined partially by an outer surface of said rotor,

the rotor comprises at least two recessed portions, wherein

the recessed portions are shaped to enable the rotor to rotate by the application of fluid flow to the rotor;

the center of mass of the rotor is substantially at the centre of the volume of space occupied by the rotor; and

at least one of the recessed portions of the rotor is configured to temporarily cup or collect the fluid.

20. (Previously presented) A filtration apparatus as claimed in claim 19, wherein the housing incorporates one or more fluid inlet ports and one or more fluid outlet ports.

21. **(Currently amended)** A filtration apparatus as claimed in claim 20, wherein the inlet port is configured to introduce the fluid into the interior of the housing in a direction eccentric in the transverse plane to a desired ~~[[the]]~~ axis of rotation of the rotor.

22. (Previously presented) A filtration apparatus as claimed in claim 19, wherein the housing includes an inlet port and an outlet port arranged such that

- (a) both ports are on the same side of the housing as one another; or
- (b) each port is on one of opposite sides of the housing; or
- (c) said ports are at a 90 degree angle to each other.

23. (Previously presented) A filtration apparatus as claimed in claim 19, wherein the fluid is selected from the group consisting of: a fuel; water; and a waste material.

24-25. (Canceled)

26. **(Currently amended)** A filtration apparatus as claimed in claim 19, wherein the at least one recessed portion is a concavely curved surface.

27. **(Currently amended)** A filtration apparatus as claimed in claim 19, wherein the rotor comprises:

said two recessed portions, one on each side of the rotor;

a ~~an approximately cylindrical~~ central portion between said two recessed portions, said central portion having an arcuate outer surface and being formed as a continuous band around the circumference of the rotor; and

two tip regions, one on either side of ~~[[a]]~~ the respective recessed portion, remote from the central portion.

28. **(Currently amended)** A filtration apparatus as claimed in claim ~~[[19]]~~21, wherein the rotor is rotatable within said housing about a number of axes of rotation when no fluid is introduced into the interior of the housing through the inlet port; and

the rotor is adapted to rotate about a single desired axis of rotation among said axes when the fluid is introduced into the interior of the housing through the inlet port, said desired axis of rotation being orientated substantially through the centre of mass of the rotor.

29. (Previously presented) A filtration apparatus as claimed in claim 19, wherein the mass of the at least one recessed portion is balanced so as to place the centre of mass of the rotor at a point substantially in the centre of the volume of space occupied by the rotor.

30-31. (Canceled)

32. **(Currently amended)** A filtration apparatus as claimed in claim ~~[[31]]~~19, wherein the rotor is covered by a protective coating ~~[[is]]~~ selected from the group consisting of: flat black modified phenolic coatings; aluminium chromate ND; nickel plating; ceramic coatings; epoxy resins; magnesium; tantalum; and combinations thereof.

33. **(Currently amended)** A filtration apparatus as claimed in claim ~~[[30]]~~19, wherein the housing includes at least one magnetic field generating element.

34. (Previously presented) A filtration apparatus as claimed in claim 19, wherein said rotor includes at least one magnet.

35. (Previously presented) A filtration apparatus as claimed in claim 34, wherein said magnet is offset from the centre of mass of the rotor.

36. (Previously presented) A filtration apparatus as claimed in claim 34, wherein the magnet is formed from materials including neodymium iron boron (NdFeB).

37. **(Currently amended)** A filtration apparatus as claimed in claim ~~[[30]]~~19, further comprising an electrical conductor in close proximity to the exterior of the rotor housing.

38. (Previously presented) A filtration apparatus as claimed in claim 19, further comprising a magnet or magnets which are fixed within the rotor and which rotate as the rotor rotates; wherein the rotating magnet or magnets induce an electrical current in an electrical conductor integral or in close proximity to the exterior of the rotor housing.

39. **(Currently amended)** A filtration apparatus as claimed in claim 19, further comprising ~~a second~~ another shaftless, ~~vaneless~~ rotor accommodated within another rotor housing which is fluidly interconnected in at least one of series; parallel; or combinations thereof with the rotor housing of ~~the first~~ said shaftless, ~~vaneless~~ rotor.

40. (Canceled)

41. **(New)** A filtration apparatus as claimed in claim 34, wherein the housing includes at least one magnetic field generating element which magnetically interacts with the magnet of said rotor to levitate the rotor out and away from contact with inner side walls of the housing.

42. **(New)** A filtration apparatus as claimed in claim 27, wherein the central band comprises an aperture or cavity in which a magnet is received to be carried by said rotor during rotational movement thereof.

43. **(New)** A filtration apparatus as claimed in claim 21, wherein said inlet port is located above said outlet port when said axis of rotation is oriented in a vertical direction, thereby causing the fluid supplied from the inlet port to drop or gravitate down to a bottom portion of the housing and circulate to the outlet port after passing underneath the rotor and, hence, acting to lift upwards and separate the bottom of the rotor from a bottom face of the housing.